

Student Name: _____

Please write your name on *every* page.

Section D

D1

Ciera tosses 2 fair coins. What is the probability that at least one coin lands on heads?

Answer to D1: _____

D2

How many words can you make using all of the letters in MATH? (The words formed do not need to be English words; for example, AHTM is a word.)

Answer to D2: _____

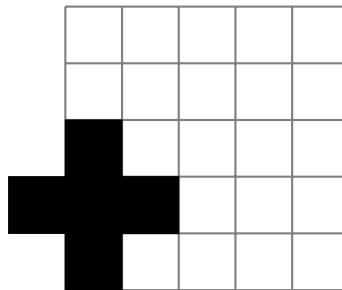
D3

What is the area of a square whose diagonal has length 4?

Answer to D3: _____

D4

What is the minimum number of crosses required to cover a 5×5 chessboard? Crosses may overlap and may go off the board. The diagram shows a chessboard partially covered by a cross.



Answer to D4: _____

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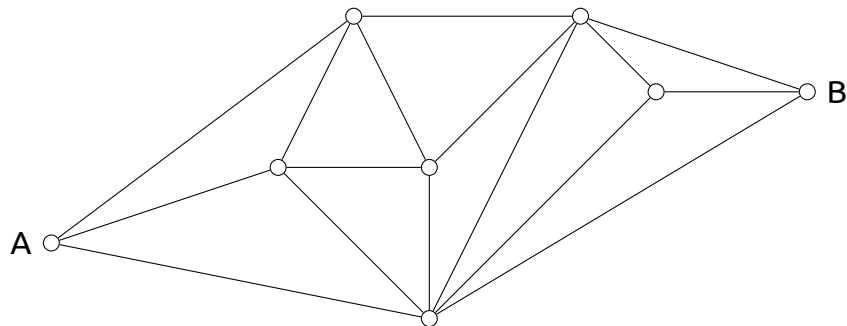
D5

Velia rolls a fair 6-sided die 3 times. What is the probability that the total is exactly 10?

Answer to D5: _____

D6

The picture below shows a map of several cities and the roads connecting them. At least how many roads need to be removed to disconnect cities A and B?



Answer to D6: _____

D7

20 apples weigh more than 25 oranges weigh, but less than 26 oranges weigh. At least how many oranges does it take to weigh more than 13 apples weigh?

Answer to D7: _____

D8

An emirp is a prime number that, when its digits are reversed, produces a different prime number. How many emirps are there between 1 and 100?

Answer to D8: _____